



CITY COUNCIL

AGENDA REQUEST

AGENDA OF:	11-19-13	AGENDA REQUEST NO:	III-F
INITIATED BY:	TIMOTHY JAHN P.E. SENIOR ENGINEER	RESPONSIBLE DEPARTMENT:	ENGINEERING
PRESENTED BY:	TIMOTHY JAHN P.E. <i>TWJ</i> SENIOR ENGINEER	DIRECTOR:	CHRISTOPHER STEUBING, P.E., CFM, CITY ENGINEER <i>CLS</i>
		ADDITIONAL DIRECTOR (S):	KENNETH RENEAU, <i>KR</i> INTERIM DIRECTOR OF WATER UTILITIES
SUBJECT / PROCEEDING:	NORTH WWTP ODOR CONTROL EQUIPMENT – CIP WW1302 AUTHORIZE DESIGN SERVICES CONTRACT WITH CAROLLO ENGINEERS		
EXHIBITS:	LOCATION MAP CAROLLO ENGINEERS SIGNED CONTRACT CAROLLO ENGINEERS PROPOSAL		
CLEARANCES		APPROVAL	
LEGAL:	EUGENIA A. CANO, FIRST ASST. CITY ATTORNEY <i>EAC</i>	EXECUTIVE DIRECTOR:	N/A
PURCHASING:	TODD REED, CPPB PURCHASING MANAGER <i>TR</i>	ASSISTANT CITY MANAGER:	KAREN DALY <i>KD</i>
BUDGET:	BRYAN GUINN, <i>BG</i> ASSISTANT BUDGET & RESEARCH DIRECTOR	CITY MANAGER:	ALLEN BOGARD <i>Allen Bogard</i>
BUDGET			
EXPENDITURE REQUIRED: \$		79,349	
CURRENT BUDGET: \$		372,000	
ADDITIONAL FUNDING: \$		0.00	
RECOMMENDED ACTION			
Authorize the execution of a design contract with Carollo Engineers for the North Wastewater Treatment Plant (North WWTP) Odor Control Equipment, CIP WW1302, in the amount of \$79,349.00.			

EXECUTIVE SUMMARY

The North Wastewater Treatment Plant (WWTP) is located adjacent to dense residential neighborhoods. With prevailing winds from the south, the City has received several complaints about odor from the surrounding neighbors over the last year or so. The existing odor control system was installed about 15 years ago by Brazos River Authority staff and the system has reached the end of its useful life.

In FY13, Carollo Engineers evaluated the main sources of the odor causing treatment units, characterized the malodorous odor from the units, and included an evaluation of odor control technology with recommendations through a Preliminary Engineering Report (PER).

The results of the PER determined that the main source of offensive odor emissions is from the onsite lift station, head works screen channel, the belt press unit, and the onsite sludge thickener. The main chemical compound contributing to the offensive odor is hydrogen sulfide (H₂S), as normally expected for WWTPs.

A phased approach is recommended to address odor control treatment effectiveness at each source. Phase 1 will address the onsite lift station and head works screen channel where the majority of the H₂S emissions were measured. Several odor control treatment technologies were evaluated and the recommended treatment option for Phase 1 is a biological treatment system using biotrickling scrubbers. Phase 2, if warranted, will possibly include addressing the belt press unit and the onsite sludge thickener once the effectiveness of Phase 1 is validated.

Biotrickling scrubbers are vendor-supplied units that typically include a fiberglass-reinforced vessel, fans, artificial media sand, gravel, or plastic beads) and control systems. The process typically involves spraying biologically-active, nutrient-rich solutions over the artificial media while the odorous air is forced through the media. The H₂S is removed from the air to the media. Biotrickling scrubbers are a cost effective treatment option that have a high efficiency rate of H₂S removal, relatively low capital construction costs, relatively low operating costs, and ease of operations.

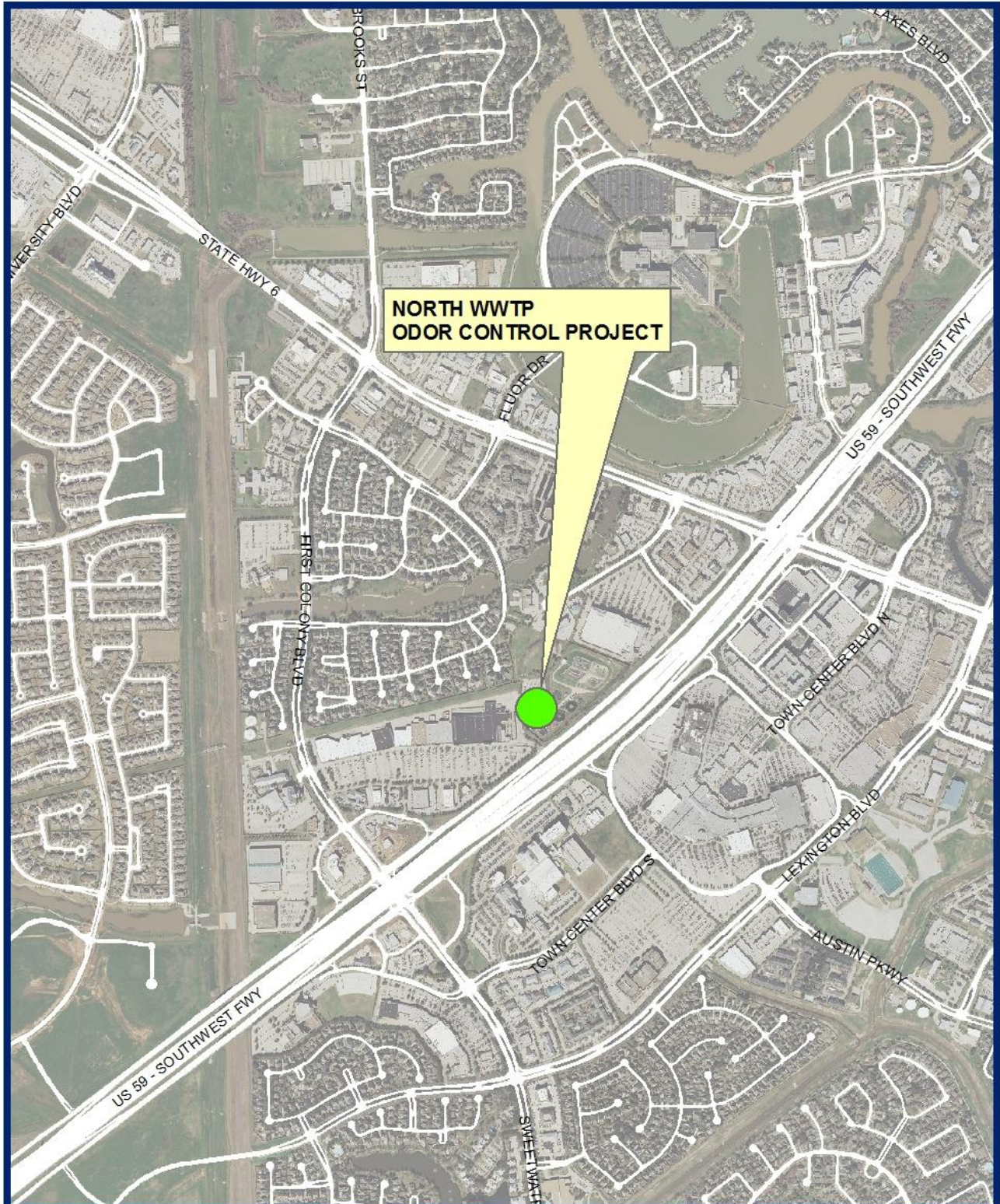
Phase 1 system improvements are ready to move forward for design. The scope of services for Carollo Engineers will include the following items:

- Project Management / Project Coordination
- Final Design Services
- Surveying
- Preparation of Probable Construction Costs
- Bidding Assistance
- Preparation of Recommendation of Award Letter
- Preparation of Conformed Contract Documents for construction

Carollo Engineers was selected based on interviews held in November 2013 with four firms selected from the City's library of pre-qualified firms and in accordance with the City policy PU-109, Procurement of Professional Services and Consulting. The design amount of \$79,349 was negotiated through a level of effort with Carollo Engineers. Funding for design for this project is available from CIP WW1302 with the design taking three months to complete.

The Engineering and Water Utilities Department recommends that the City Council authorize the execution of a design contract with Carollo Engineers for the North Wastewater Treatment Plant (North WWTP), CIP WW1302 in the amount of \$79,349.00.

EXHIBITS



**CAPITAL IMPROVEMENT PROGRAM
NORTH WWTP ODOR CONTROL PROJECT
CIP NO. WW1302**



**CITY OF SUGAR LAND STANDARD CONTRACT
FOR PROFESSIONAL ENGINEERING DESIGN
SERVICES FOR CITY FACILITIES**
Over \$50K - Form Revised 3/1/10

I. General Information and Terms.

Engineer's Name and Address: Carollo Engineers, Inc.
9800 Richmond Avenue, Suite 427
Houston, TX 77042

Project Description: North Wastewater Treatment Plant Odor Control
System Design

Maximum Contract Amount: \$79,349.00

Effective Date: On the latest date of the dates executed by both parties.

Termination Date: (See III F)

II. Signatures. By signing below, the City and the Engineer agree to the terms of this Contract.

CITY OF SUGAR LAND

City Manager or Assistant City Manager

Date: _____

APPROVED AS TO FORM:

Eugene A. Carr

ENGINEER:

By: _____

Date: _____

Darryl Corbin
DARRYL CORBIN P.E.
Vice President
10/25/2013
Paul Walker
PAUL WALKER
VICE PRESIDENT
11/5/13

Attachment A
City of Sugar Land
North Wastewater Treatment Plant
Odor System Design
Scope of Work

GENERAL

Carollo Engineers, Inc. (ENGINEER) will design the odor control system for the City of Sugar Land (CITY)'s North Wastewater Treatment Plant (NWWTP). A summary report will be prepared that describes the sampling and testing program, presents a summary of findings and provides raw laboratory data as an Appendix. The following scope details the work effort for the Phase 1 Odor Evaluation.

SUBCONSULTANTS

The following subconsultants will perform work on this Project, contracted to Carollo.

- Kuo Associates, Inc. - Survey

Task 1 – Project Management. Project controls will be used to guide and manage the activities of the Carollo Team, including the sub-consultant, during execution of the authorized work activities. The following will be performed under this task:

- a. Conduct Project Kick-off Meeting: The kick-off meeting will be held as soon as practical following notice to proceed. The meeting will cover introductions, project roles & responsibilities, expectations, purpose and goals, sampling program protocol and schedule.
- b. Provide ongoing project controls consisting of:
 - Conduct 30%, 60% and 90% review meetings.
 - Plan, organize, staff, direct, manage, coordinate, and report work tasks of project team including subconsultant.
 - Maintain and update project logs (action items, decisions, schedule).
 - Conduct monthly project management meetings with City management staff.
- c. Prepare and submit monthly invoices and status reports including back-up information

Deliverables:

- Kick-off Meeting Agenda, Materials, and Meeting Minutes
- Monthly status reports and invoices
- Project logs and updates

Task 2 – Final Design Services. The Final Engineering Documents prepared by ENGINEER will include all engineering services to carry out the concepts agreed upon by the CITY in the NWWTP Odor Evaluation report. Final Engineering will include designs, construction plans,

specifications, and engineer's estimate for the Project that will enable the CITY to advertise and award the construction contract for the Project.

ENGINEER will prepare plans, specifications, and engineer's construction cost estimates for the Odor Control System such that CITY may advertise and award a construction contract for the Project.

The following describes the Scope of Services for the project to provide reliable odor control system:

1. Perform engineering analysis to determine fan size, duct size, and duct routing.
2. Develop process and instrumentation diagrams (P&IDs) for the new odor control system.
3. Design new 2,200 cfm biofilter odor control system, including concrete pad, and new fan.
4. Design new ducts, and required appurtenances necessary to interconnect the odor control system for the lift station, and headworks.
5. Disconnect the existing odor control ductwork from the lift station and the headworks.

ENGINEER will prepare contract documents for bidding and construction purposes including construction plans, specifications, and final engineer's construction cost estimate, and copies of data in digital format in the latest version of MS Word for all specifications and in Microstation for all drawings upon the completion of the Project.

Deliverables:

- 30% Submittal – 5 copies of Specifications, 11 x 17 plans, and OPCC
- 60% Submittal - 5 copies of Specifications, 11 x 17 plans, and OPCC
- 90% Submittal - 5 copies of Specifications, 11 x 17 plans, and OPCC
- 100% Submittal - 5 copies of Specifications, 11 x 17 plans, and OPCC

Task 3 – Bidding Assistance. ENGINEER will assist CITY in providing clarification and prepare addenda as needed for questions that may arise during the bidding process. ENGINEER will attend the pre-bid meeting, if any, and record the minutes of the meeting as required and distribute to the CITY.

Deliverables:

- Addenda
- Pre-bid Meeting minutes

SCHEDULE:

The work will be completed within 3 months of notice to proceed.

ASSUMPTIONS:

1. The existing electrical conduits are operational and no new conduits will be required for this system.
2. The odor control system includes a bio scrubber, one fan and appurtenances.
3. The NPW source is available for the bio scrubber.
4. The covers for the headwork channels will be designed as rubber mats.
5. No geotechnical work is required. COSL to provide past geotechnical reports for the North WWTP.

City of Sugar Land, Texas
North Wastewater Treatment Plant Odor Control System



Item	Description/Task	Carollo Engineers, Inc.							Kuo	Total Estimated Fee (\$)
		Principal Technologist	Project Manager	Engineer	Engineering Technician	Word Processor	Subtotal (hrs)	Carollo Cost (\$)	Survey Cost (\$)	
		\$ 230.00	\$ 210.00	\$ 133.00	\$ 120.00	\$ 90.00				
Task 1	Project Management (2 months)	7	22	24	0	4	57	\$ 9,782	\$ -	\$ 9,782
1.1	Project Scheduling	0	4	8	0	0	12	\$ 1,904		\$ 1,904
1.2	Project Status Report	3	6	0	0	0	9	\$ 1,950		\$ 1,950
1.3	Project Work Plan	2	4	8	0	0	14	\$ 2,364		\$ 2,364
1.4	Project Meetings									
	Kick-off meeting	2	2	2	0	1	7	\$ 1,236		\$ 1,236
	30% Submittal Meeting	0	2	2	0	1	5	\$ 776		\$ 776
	60% Submittal Meeting	0	2	2	0	1	5	\$ 776		\$ 776
	90% Submittal Meeting	0	2	2	0	1	5	\$ 776		\$ 776
Task 2	Final Design Services	31	38	128	90	70	357	\$ 49,234	\$ -	\$ 49,234
2.1	Prepare Design Documents (Drawings and Specifications)	14	32	100	90	70	306	\$ 40,340		\$ 40,340
2.2	QA/QC	16	2	4	0	0	22	\$ 4,632		
2.3	Cost Estimate	1	4	24	0	0	29	\$ 4,262		\$ 4,262
Task 3	Bidding Assistance (1 month)	4	12	22	16	12	66	\$ 9,366	\$ -	\$ 9,366
3.1	Issuance of Addenda	1	2	6	4	4	17	\$ 2,288		\$ 2,288
3.2	Conduct Pre-bid Meeting	2	2	0	0	0	4	\$ 880		\$ 880
3.3	Respond to Bidder's Questions	1	4	8	0	0	13	\$ 2,134		\$ 2,134
3.4	Conformed Documents	0	4	8	12	8	32	\$ 4,064		\$ 4,064
SUBTOTALS		42	72	174	106	86	480	\$ 68,382		\$ 68,382
Project Equipment & Communications Expense (PECE) - \$11.70/hr								\$ 5,616		
SURVEY ALLOWANCE									\$ 3,000	
OTHER DIRECT COSTS (3% OF SUBTOTAL LABOR FEE)								\$ 2,051	\$ -	
SUBCONSULTANT MARKUP (10% OF SUBCONSULTANT COSTS)								\$ 300		
	TOTALS	42	72	174	106	86	480	76,349	\$ 3,000	\$ 79,349